EOSDIS IV&V
Monthly Status Report

For the Period 5/1/96 to 5/31/96

(Deliverable 0203.11)

June 14, 1996

Prepared by:

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1. PROGRAMMATIC INFORMATION

1.1 IV&V Project Organization Chart

Exhibit 1-1 illustrates the current organizational structure of the EOSDIS IV&V team. The approximate number of personnel assigned to each technical task is also indicated.

1.2 Overview of Work Being Performed

a) Key Recent Accomplishments

- **Programmatic**

    - Began planning IV&V/SI&T support needs for next contract year (7/1/96 - 6/30/97).

    - Began drafting Significant Events for the current performance period as part of the required Contract Self Evaluation due in Mid-July.

    - Led the SI&T Task (Task 11) restructure as well as the conceptualization of the EGS Confidence Test Program.

    - Continued developing Mentor/Protege relationship with Geo Control Systems to begin Phase 1 of the Behavioral Integration and Test Simulation (BITS) Facility.

    - Began weekly monitoring of issues within the Project Issue Tracking System (PITS). Proactively working to achieve closure on outstanding issues.

- **Technical**

    - Under Task 4B, delivered ISE Element User Guide on 5/31/96, as scheduled. Also, released PITS WWW Browser. This browser is now available through the EOSDIS IV&V Homepage.

    - Under Task 5B, delivered TAM on ECS User Modeling Activities, as well as white paper on Behavioral Simulation Environment for Systems Under Test (i.e., BITS). Also, began working on the requirements functionality shift from Release A to Release B and evaluating TRMM impacts.

    - Under Task 6B, completed Release B CDR design analysis assessment and generated RIDs. Started Release B IRVVP and associated Criticality Analysis and Risk Assessment (CARA) to be delivered in June.

Exhibit 1-1: Org Chart (Landscape)

- Under Task 7, delivered ICE Final Written Report and briefed both EOSDIS Data Panel and NASA Headquarters on ICE results. Worked on porting CCM prototype to Windows NT environment and laying the foundation for CCM Hardware Model and User Model development.

- Under Task 9B, prepared TAMs for 7 ICD/IRD documents. Also, provided the ICWG with metrics on 13 EBNet ICDs.

- Under Task 11B, delivered EGS Confidence Test Program annotated outline as scheduled on 5/15/96, and began expanding this outline into a Confidence Test Program Plan, the first draft of which is due on 6/14/96.

Additional status information on each of the technical tasks can be found in Appendix A.

b) New/Proposed Task Assignments

- Since IV&V will be the primary user of the EOSDIS Test System (ETS), we believe that it would be in the Government's best interest if NASA directed us to operate and maintain the system after it is fully developed.

1.3 Overview of Schedule Status

Exhibit 1-2 presents the latest, high level milestone chart (i.e., dated June 11, 1996) for all technical tasks assigned on the EOSDIS IV&V contract. In addition, Exhibit 1-3 lists in chronological order the deliverables/milestones associated with the contract for both the current month and the next month, as well as the status of each deliverable/milestone.

1.4 Performance Assurance Activities

- **Performance Assurance Activities**

  - Five IV&V team members attended a review on ESDIS Networks in May.

  - Two IV&V team members attended a class in Object Oriented Analysis / Object Oriented Design (OOA/OOD) at the Hughes facility during the week on May 13.

  - IV&V internal training efforts in May included training on RTM Version 3.0, and training on the Test Management Database (TMDB).

Exhibit 1-2: Milestone Chart (Landscape)

Expected Date Due	Dependency	Milestone/ Deliverable	Task #	Status*	Comments
5/1/96		EOSDIS Version 1 Component Acceptance Test Plan for ECS Release A (Preliminary)	10C	CX	Task Canceled.
5/1/96		**EGS Version 1 I&T Plan (Baseline)**	**11A**	**C**	**Submitted on time.**
5/3/96		**ICE Final Written Report**	**7**	**C**	**Submitted on time.**
5/8/96	**Rel B CDR + 2 Weeks**	**Release B CDR Design Analysis TAM(s)**	**6B**	**C**	**Submitted ahead of schedule on 5/2/96.**
5/8/96	**Rel B CDR + 2 Weeks**	**Release B CDR RIDs**	**6B**	**C**	**Submitted ahead of schedule on 5/2/96.**
5/15/96		EOSDIS Version 1 Component Acceptance Test Plan for ECS Release A (Review)	10C	CX	Task canceled.
5/16/96		CCM Hardware Model	7	D	Complete source documentation not available yet. Currently discussing schedule modifications with Dr. Barkstrom.
5/31/96		**ISE Element Users Guide - Update**	**4B**	**C**	**Submitted on time.**
5/31/96		**Task 6B Monthly Metric Report**	**6B**	**C**	**Submitted on time.**
6/4/96		CCM Data Distribution Model	7	D	Source documentation not available yet.
6/5/96	**Rel B CDR + 6 Weeks**	**Release B IRVVP (Final)**	**6B**	**C**	**Submitted on time.**
6/14/96		ISE Software Code - Update	4B	IP	
6/14/96		ISE Element Version Description - Update	4B	IP	
6/27/96		CCM Staffing Model	7	D	Source documentation not available yet.
6/28/96		ISE Release 2 Demonstration (ISER2)	4B	IP	
6/28/96		**ECS Release B Rqmts Analysis TAMs (Total of 3)**	**5B**	**C**	**Submitted 2 months ahead of schedule.**
6/28/96		Second Quarter ECS Model Assessment TAMs (Total of 3)	5B	O	
6/28/96		Task 6B Monthly Metric Report	6B	O	

* C = Completed, IP = In Process, O = Open, D = Delayed, CX = Canceled
<u>Note</u>: *Italics* indicates tasks that are not yet activated.

EXHIBIT 1-3: Status of Milestones/Deliverables

- Throughout the month of May, SI&T Test Team members have been receiving UNIX training at the Goddard Learning Center. Training was also received on Relational Databases.

- IV&V plans to conduct a BONeS class for ESDIS personnel on 6/11 and 6/12 to facilitate their understanding of this tool.

1.5 Major Short Term Activities Planned

- **Program-wide Activities**

  - Provide NASA with inputs to task SOWs for next contract year.

  - Finalize Significant Events and draft Contract Self Evaluation for current performance period.

  - Conduct internal IV&V Process Improvement Review on 6/4/96 to consider better ways to support this contract and provide value-added impact to the overall EOSDIS program. Invite IV&V COTR to participate.

  - Prepare for next Findings Meeting with ESDIS Management, currently scheduled for 7/1/96.

  - Attend Release B Delta CDR.

- **Task-specific Activities**

  - For Task 4B, conduct the ISE Release 2 (ISER2) Demonstration, and deliver both the ISE Software Code and the ISE Element Version Description document.

  - For Task 5B, complete TAMs on Partial Requirements Allocation Assessment and Release B End-to-End Modeling Assessment.

  - For Task 6B, complete Release B IRVVP and associated CARA. Continue ECS Release A test witnessing activities, and complete review of SDPS and CSMS database design and schema specifications.

  - For Task 7, develop TAM on suggested metrics for future program monitoring based on ICE findings. Also, continue CCM Hardware Model development and porting of CCM prototype to the Windows NT environment.

  - For Task 9B, continue analyzing ICDs/CCRs and documenting findings. Populate the PITS ICWG repository.

- For Task 11B, deliver Preliminary Confidence Test Program Plan and begin developing FOS Confidence Test package. Also, begin observing FOS A2 I&T activities.

1.6   Key Long Range Plans/Schedules

The IV&V team will support the activities and milestones identified in Exhibit 1-2. Emphasis will be placed on those activities that are on the critical path to support the on-time launch of the spacecraft. Such activities include supporting System Integration, performing Interface and Integration Testing, and conducting System Certification.

The team will emphasize its System Integration and Test (SI&T) role and narrow its IV&V focus to those activities that support successful SI&T. Other IV&V functions will be secondary and will be prioritized based on available funding.

2. FINANCIAL/CONTRACTUAL INFORMATION

This Section

Has Been Removed

Due to Proprietary Content.

<u>APPENDIX A</u>

TECHNICAL TASK STATUS INFORMATION

Task # 4B: IV&V Infrastructure and Tool Development

a) Task Accomplishments

- Delivered the ISE Element User Guide (revision to existing document) on 5/31/96, as scheduled.

- Released the initial Project Issue Tracking System (PITS) World Wide Web (WWW) Browser capability as an extension of the EOSDIS IV&V Homepage. PITS issues are now extracted from Sybase and displayed via Netscape for authorized users. Authorized users include EOSDIS IV&V personnel in Fairmont and Greenbelt, and selected NASA Goddard personnel.

- Performed the following activities in association with the PITS client/server application:
  - Added print capability for RIDs
  - Submitted IV&V RIDs via PITS e-mail capability
  - Modified ICWG reports
  - Added Issue Sponsor metadata item to TIM form, query form, and associated combo boxes

- Developed an RTM Difference Utility (RDU) prototype to determine differences between RTM baselines.

- Evaluated the Checkpoint PC tool to determine the feasibility of sharing this tool between geographically dispersed individuals.

- Continued maintenance for the EOSDIS IV&V Homepage and EGS I&T Homepage.

b) Issues/Concerns

- None.

c) Subcontractor Performance

- EWA performance during this reporting period was very good. They supported system administration activities, continued maintenance of the EOSDIS IV&V and EGS I&T Homepage, supported data entry and conversion activities as required to maintain ISE information, and continued development of the PITS WWW Browser.

d) Planned Activities

- Conduct the ISE Release 2 (ISER2) Demonstration, currently scheduled to be held on 6/14/96.

- Deliver the ISE Software Code by 6/14/96.

- Deliver the ISE Element Version Description document by 6/14/96.

- Continue support (refinement, development, and maintenance) for the ARDB, PITS, and TMDB client/server tools.

- Upgrade to Sybase System 11.0.0 from version Sybase System 10.1.0.

- Install RTM Version 3.0 in preparation for transition from Version 2.3.

- Perform data entry in order to maintain currency of information on the EOSDIS IV&V and EGS I&T Homepages.

- Perform system administration duties for both LANs, hardware, and COTS software as required.

- Support program meetings and briefings as required.

Task # 5B: Requirements Analysis and Traceability

a) Task Accomplishments

- Delivered TAM on ECS User Modeling Activities, as scheduled.

- Prepared class plan for ESDIS BONeS training, scheduled for 6/11 and 6/12.

- Delivered white paper and briefed ESDIS on Behavioral Simulation Environment for Systems Under Test.

- Initiated ECS Requirements Functionality Shift Assessment to be completed by 6/28/96. This is additional effort, not originally scheduled within the task SOW.

- Continued supporting Hughes, ESDIS QA, and ESDIS I&T by providing detailed baseline examples to resolve issue of defining RBR allocation to multiple releases.

- Provided Hughes with the Release B 304 Performance Requirements Issue Table so that they could resolve discrepancies between the requirements baseline and the technical baseline. So far, Hughes has corrected 9 out of 69 performance requirements issues using the IV&V charts.

b) Issues/Concerns

- IV&V is concerned that there may not be sufficient staff allocated for Requirements Life Cycle Support when compared with the planned deliverables for the future Task 5 SOW period.

c) Subcontractor Performance

- Subcontractor performance has been very good.

d) Planned Activities

- Complete partial requirements allocation assessment TAM.

- Conduct ESDIS BONeS class.

- Complete Behavioral Simulation Environment SOW and estimate.

- Revise Release B End-to-End Modeling assessment TAM.

- Support program meetings and briefings as required.

Task # 6B: ECS Development Analysis

a) Task Accomplishments

- Continued ECS Release A test witnessing. Attended one mini-TRR covering SDPS PDPS and Data Server tests.

- Completed revision of ECS Release A test witnessing approach in coordination with ESDIS Project.

- Generated SDPS, CSMS, and FOS design and test witnessing metrics based on the 5/3/96 release of RTM, the StP design repository, and test documentation. Documented results in Task 6B May Monthly Metrics Report submitted to ESDIS on 5/31/96.

- Completed design analysis activities in support of the Release B CDR conducted in April. Submitted TAM documenting results of an SDPS/CSMS internal interfaces design analysis on 5/2/96. Also, submitted 3 RIDs on 5/2/96.

- Completed Toolkit 5 Version 1.10 evaluation. To facilitate the rapid turnaround of this review, written comments were submitted to the ESDIS POC on an almost-daily basis.

- Conducted IV&V Release B Criticality Analysis and Risk Assessment (CARA). Results will be documented in Release B IRVVP to be submitted in early June.

- Began review of SDPS and CSMS database design and schema specifications. Comments are due to ESDIS on 6/14/96.

b) Issues/Concerns

- None.

c) Subcontractor Performance

- Subcontractor performance has been good.

d) Planned Activities

- Continue ECS Release A test witnessing activities. Begin traceability analysis of Release A Level 4 requirements to test cases for Phase 1 and 2 tests.

- Begin analysis of DDSRV and SDSRV CSCIs of Data Server Subsystem to support Release B Delta CDR.

- Attend Delta CDR for Data Server Subsystem to be conducted in mid-June.

- Complete review of SDPS and CSMS database design and schema specifications. Comments will be documented in TAMs to be submitted to ESDIS on 6/14/96.

- Complete Release B IRVVP documenting results of CARA, and submit to ESDIS in early June.

- Document and submit updated requirements traceability, design, and test metrics for month of June.

- Support program meetings and briefings as required.

Task # 7: Programmatic and Process Analysis

a) Task Accomplishments

- Submitted Final ICE Written Report as scheduled on 5/3/96.

- Briefed EOSDIS Data Panel and NASA Headquarters on ICE results.

- Began laying the foundation for CCM User Model and Hardware Model development.

- Began porting CCM prototype to the Windows NT environment.

b) Issues/Concerns

- The deliverable schedule for the CCM development effort needs to be revisited, since the expected source documentation is not as yet available. IV&V has been in contact with Dr. Bruce Barkstrom to try to resolve this issue.

c) Subcontractor Performance

- Not Applicable.

d) Planned Activities

- Brief Director of GSFC on ICE results on 6/3/96.

- Based on ICE study, develop TAM on suggested metrics for future program monitoring.

- Brief ESDIS Management and members of the ECS development team on the CCM concept, scope, and state of model development to date.

- Continue work on CCM Hardware Model and on porting CCM prototype to the Windows NT environment.

- Work with Dr. Barkstrom to replan the CCM development schedule.

- Support other program meetings and briefings as required.

Task # 9B: Key Interface Analysis

a) Task Accomplishments

- Reviewed and prepared TAMs for the following documents:

057	5/23/96	Technical Analysis of the ICD between ECS and LaRC DAAC
058	5/13/96	Technical Analysis of the IRD between EDOS and EGS
059	5/14/96	Technical Analysis of the IRD between EDOS and EBNet
060	5/13/96	Technical Analysis of the IRDs between EDOS and EGT, TGT, ETS
061	5/16/96	Technical Analysis of the EBNet ICDs
062	5/23/96	Technical Analysis of the SDPF - TRMM Consumers ICD
063	5/30/96	Technical Analysis of the IRD between ECS and SAGE-III MOC

- Evaluated and prepared Impact Analysis Report for the CCR entitled "Baseline the ECS to TSDIS ICD."

- Presented PITS with ICWG repository to C. Carlisle and the ICWG. Walked through contents and format, and solicited feedback.

- Provided ICD metrics to ICWG for 13 EBNet ICDs.

- Prepared ISS CARA portion of the Release B IRVVP.

b) Issues/Concerns

- The workload on Task 9 is exceeding the staff resources (3.75 FTEs). On direction from Candace Carlisle, we are limiting the depth of our analysis to fit the time available. The growing backlog of documents needing review could compromise the quality of the reviews. For example, we were recently required to review 30 interface documents in a 1.5 month period.

c) Subcontractor Performance

- CTA is the task lead for this effort. Their performance has been very good.

d) Planned Activities

- Analyze Landsat 7 Engineering Data CCR and draft comments.

- Analyze ICD between ECS to GSFC DAAC and draft TAM.

- Complete PITS entry for issues identified in SCF, Version 0, and NOAA ICDs.

- Review/Analyze CCR for Release B version of ECS-Version 0 ICD.

- Review/Analyze May 96 version of ECS - Langley DAAC ICD and prepare TAM.

- Review EDOS ICDs as received (6 expected).

- Continue data entry into PITS ICWG repository, and present at next ICWG status meeting scheduled for 6/18/96.

- Support program meetings and briefings as required.

Task # 11B: EOS Ground System Integration and Test

a) Task Accomplishments

- Delivered EGS Version 1 I&T Procedures (Baseline) as scheduled on 5/1/96.

- Delivered EGS Confidence Test Program annotated outline as scheduled on 5/15/96. Began expanding this outline into a Confidence Test Program Plan, the first draft of which is due on 6/14/96.

- Completed work on TAM addressing Release B SDPS/CSMS Operations Scenarios.

- Continued to support SMO in resolving the DRs resulting from the Component Test activity (i.e., the former activities under Task 10).

b) Issues/Concerns

- None.

c) Subcontractor Performance

- Subcontractor performance has been very good. Their contributions have been fundamental to the new organization and operation of Task 11.

d) Planned Activities

- Deliver Preliminary Confidence Test Program Plan on 6/14/96.

- Begin FOS Confidence Test package development.

- Begin observing FOS A2 I&T activities.

- Support program briefings as required.

Appendices B and C
have been removed
due to proprietary content.